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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHANG, JON CARLTON

ART UNIT PAPER NUMBER

2623

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/479,886

Applicant(s)

KAKIUCHI ET AL.

Examiner

Jon Chang

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on January 10, 2005 has been entered.

Response to Applicants' Amendment and Arguments

2. The amendment filed January 10, 2005, has been entered and made of record. Claims 1, 2, 7 and 13-14 have been amended. Claims 20-24 have been added. Claims 1-24 are pending.

Applicant's arguments have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

After describing the newly added limitations to the claims on pages 9-10, and providing a brief description of Fu's disclosure on page 10, Applicants provide the thrust of their argument on pages 11-12. Essentially, Applicants argue that Fu only discloses use of scaling factors (for both reduction and magnification) which are multiples of 25%, whereas the instant invention is capable of detecting arbitrary images in a magnification range such that a human eye cannot distinguish between the original image and the magnified image. Applicants state that such magnification level increments are so large

that a person can easily distinguish between the original image and the magnified image. The Examiner disagrees. At least the magnification level of 100% scale (i.e., a factor of 0) would not be distinguishable to the human eye. In other words, the human eye would not be able to distinguish between an original and a magnification of 100% scale. Any reference arrangement data at 100% magnification, for each of the patterns, would therefore meet the language of the claim.

The Examiner also notes that Fu only uses the disclosed magnifications (100%, 75%, 50%, 125% and 150% scale) as non-limiting examples (note Fu's language, "Furthermore, **if say**, these patterns have to be detected...", column 7, lines 53-54). Fu actually states, "Furthermore, if the circle checker 54 needs to be scale invariant, then the structural rules database 53 will contain circle geometry information for each of the scales at which the circles need to be detected," (column 7, lines 47-51), which seems to indicate that any scale can be used.

The Examiner also notes that claim 7 does not require "multiple magnification levels each below a threshold where said magnification can be readily identified as a magnified version of an original by a human eye". As it is presented in the preamble of the claim, it merely sets forth an intended use, and would read on any prior art which is merely capable of the limitation, whether it discloses it or not.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-16 and 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,370,271 to Fu et al. (hereinafter "Fu").

As to claim 1, Fu discloses an image recognition device, for detecting arbitrary images (note "a bitmap image provided by any digital image acquisition device" at column 6, lines 16-19, as well as "currency, securities, negotiable instruments, etc." at column 11, lines 33-34), comprising:

an element matching means to match a plurality of input pattern elements obtained by dividing an input image into a plurality of regions with the corresponding target pattern elements of a target pattern (column 2, line 65 to column 3, line 1; column 3, lines 7-11; Figures 1A-1E; Fig.6, elements 603, 604, 605); and

a pattern detection means to detect relative positions of said plurality of input pattern elements compared with a multiple magnification reference arrangement data (column 7, lines 47-56; column 9, lines 1-3) of each of said target pattern elements in order to recognize whether said input image includes said target pattern (column 3, lines 4-5; Figs.1A-1E; Fig.6, elements 608, 609);

wherein said multiple magnification reference arrangement data corresponds to magnification levels no greater than a level where a human eye can distinguish between

an original and a magnification (at column 7, line 47-56, at least the magnification scale of 100% (i.e., a magnification level of 0) would not be distinguishable to the human eye. In other words, the human eye would not be able to distinguish between an original and a magnification scale of 100%. Any reference arrangement data at 100% magnification would therefore meet the language of the claim.).

As to claim 2, Fu discloses an image recognition device, for detecting arbitrary images, comprising:

a dictionary generating unit which stores dictionary data for each pattern element in a target pattern (column 4, line 63);

an element matching unit, which compares and matches input image pattern data which is provided as input against said dictionary data stored in said dictionary generating unit (column 2, line 65 to column 3, line 1; column 3, lines 7-11; Figures 1A-1E; Fig.6, elements 603, 604, 605);

an arrangement data generating unit which stores the position data representing the arrangement of each of the target pattern elements at a plurality of magnifications, each of said plurality of magnifications being no greater than a level where a human eye can distinguish between an original and magnification (column 3, lines 4-5; column 7, lines 46-58; column 9, lines 1-3; at column 7, line 47-56, at least the magnification scale of 100% (i.e., a magnification level of 0) would not be distinguishable to the human eye. In other words, the human eye would not be able to distinguish between an original and a magnification scale of 100%. Any reference arrangement data at 100% magnification would therefore meet the language of the claim.); and

a pattern detection unit, which based on the output of said element matching unit and said position data from said arrangement data generating unit, determines whether said target pattern can be found in said input image pattern data (column 3, lines 4-5; Figures 1A-1E; Fig.6, elements 608, 609).

Regarding claims 3-6, Fu further discloses that the dictionary generating unit, the element matching unit, the arrangement data generating unit, and the pattern detection unit comprising software routines (column 5, lines 22-24).

As to claim 7, Fu discloses an image processing device, for detecting arbitrary images (note "a bitmap image provided by any digital image acquisition device" at column 6, lines 16-19, as well as "currency, securities, negotiable instruments, etc." at column 11, lines 33-34) at multiple magnification levels each below a threshold where said magnification can be readily identified as a magnified version of an original by a human eye (at column 7, line 47-56, at least the magnification scale of 100% (i.e., a magnification level of 0, which is below any threshold) would not be distinguishable to the human eye. In other words, the human eye would not be able to distinguish between an original and a magnification scale of 100%. Any reference arrangement data at 100% magnification scale would therefore meet the language of the claim.)comprising:

an element matching means to match a plurality of input pattern elements obtained by dividing an input image into a plurality of regions with the corresponding target pattern elements of a target pattern (column 2, line 65 to column 3, line 1; column 3, lines 7-11; Figures 1A-1E; Fig.6, elements 603, 604, 605);

a pattern detection means to detect relative positions of said plurality of input pattern elements compared with a reference arrangement data at multiple magnifications of each of said target pattern elements in order to recognize whether said input image includes said target pattern (column 3, lines 4-5; column 7, lines 46-58; column 9, lines 1-3; Figures 1A-1E; Fig.6, elements 608, 609) ; and

a control means to control output of said input image to an output device when said pattern detection means recognizes said input image includes said target pattern (Figs 1A-1E; note the printer).

With regard to claim 8, Fu further discloses that the output device comprises a printer (Figs. 1A-1E).

Fu further discloses the scanner, digital camera or floppy disk for inputting the input image, as required by claims 9-11 (Figs.1A-1E; column 5, lines4-5 and 11-12).

With regard to claim 12, Fu further discloses a personal computer to facilitate copying of said input image (Fig.1C).

Claim 13 is drawn to a recording medium containing computer code for implementing an image recognition method for detecting arbitrary images which corresponds to the device of claim 1. Fu discloses this at column 5, line 4-10.

As to claim 14, Fu discloses a method of processing an image, said method comprising:

inputting a reference image, said reference image being an arbitrary image (column 3, lines 4-12; note "a bitmap image provided by any digital image acquisition

device" at column 6, lines 16-19, as well as "currency, securities, negotiable instruments, etc." at column 11, lines 33-34);

determining target pattern elements for said reference image by dividing said reference image into a plurality of regions (column 3, lines 37-41);

determining reference arrangement data for each of said target pattern elements at a plurality of magnifications, said plurality of magnifications being no greater than a level where a human eye can distinguish between an original and an magnification (column 3, lines 4-15; column 7, lines 46-58; column 9, lines 1-3; at column 7, line 47-56, at least the magnification scale of 100% (i.e., a magnification level of 0) would not be distinguishable to the human eye. In other words, the human eye would not be able to distinguish between an original and a magnification scale of 100%. Any reference arrangement data at 100% magnification would therefore meet the language of the claim.);

inputting data for an input image (Fig.6, input to element 601);

determining input elements for said input image by dividing said input image into said plurality of regions corresponding to said reference image (column 3, lines 9-10); and

comparing said target pattern elements and said input elements (column 3, lines 12-15).

As to claim 15, Fu discloses the method of claim 14, wherein said comparing comprises comparing said target pattern elements and said input elements relative

position to each other using said arrangement data (the templates, column 3, lines 40-41).

As to claim 16, Fu discloses the method of claim 14 further comprising halting if said target pattern elements include said input elements based on said comparing (column 6, lines 48-51).

Regarding claims 20-24, Fu discloses a magnification level no greater than 15% (column 7, lines 46-58; for a magnification scale of 100%, the magnification level is 0, which is lower than 15%).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fu.

As to claim 18, Fu does not disclose reducing the resolution of a reproduction of said input image if said target pattern elements include said input elements based on said comparing. The Examiner takes Official Notice that reducing the resolution of a reproduction is well known in the art. It would have been obvious to one of ordinary skill in the art to implement this technique in Fu because it would allow a person to easily distinguish a reproduction from an original.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fu and U.S. Patent 5,583,614 to Hasuo et al. (hereinafter "Hasuo").

As to claim 17, Fu does not disclose changing the color of a reproduction of said input image if said target pattern elements include said input elements based on said comparing. However, Hasuo teaches outputting an image in a different color if it is determined that an input image is money (i.e., should not be copied) based on a comparison (Fig.6). It would have been obvious to one of ordinary skill in the art to employ Hasuo's technique in Fu's method because this would allow a person to easily see that a printed document is a copy, and not an original. This would be important for documents which should not be copied exactly, such as money, for example.

9. Claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Fu and U.S. Patent 5,257,119 to Funada et al. (hereinafter "Funada").


As to claim 19, Fu does not disclose superimposing an alphanumeric character on top of a reproduction of said input image if said target pattern elements include said input elements based on said comparing. However, Funada teaches superimposing alphanumeric characters on top of a reproduction of an input image when it is determined that the input image is confidential based on the presence of certain information in the image (e.g., Fig.10; column 8, line 46 to column 9, line 11). It would have been obvious to one of ordinary skill in the art to employ Funada's technique in Fu's method because this would allow a person to easily see that a printed document is a copy, and not an original. This would be important for documents which should not be copied, such as confidential documents, for example.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jon Chang
Primary Examiner
Art Unit 2623

Jon Chang
February 17, 2005